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CENTRAL FAX CENTER

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Application Serial No. 09/972,076

## LISTING OF CLAIMS

1. (Previously Presented) A method for a business end user for integrating the design of and the use of a decision service hosted at a data center that is external to the business end user's system that returns a real-time decision in ASP mode, said method comprising:

a business end user linking from a business client system, using standard protocols over the Internet or virtual private network, to decision engine project design software that is resident on a first server system at a host site that is external to said business client system, and said business end user using project design software that is hosted at said external data center to design a project incorporating any of or any combination of rules, models, and/or strategies, wherein said project design software further comprises capability for inserting a champion/challenger experiment for testing a new strategy;

responsive to said business end user is being satisfied with said any of or any combination of rules, models, and/or strategies and completing a design of said project, passing control to a code generator server hosted at said external data center where said code generator server generates strategy service software code, corresponding to said completed project, for use in production mode in an ASP environment at said external data center;

responsive to generating said strategy service software code, installing said generated strategy service code on a decision server hosted at said external data center for executing said rules, models, and/or strategies in production mode;

in production mode, a second business end user, from a business application corresponding to said business client system, sending at least one inquiry transaction over said Internet to a Web server hosted at said external data center, which in turn delivers input data, representing said inquiry transaction, in ASP mode to said decision server;

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said decision server processing said input data according to said installed strategy service code and creating corresponding output data at said external data center;

said decision server returning said created output data to said Web server in XML format; and

said Web server returning said output data to said business application corresponding to said business client system for said second business end user.

2. (original) The method of Claim 1, further comprising:  
using system integration and consulting services, said consulting services for developing and refining rules, models, and strategies.
3. (original) The method of Claim 1, wherein said generated code is in C.
4. (original) The method of Claim 1, wherein said decision server is linked to external data resources for extracting additional relevant data.
5. (original) The method of Claim 1, wherein said input data is in XML format and wherein an ASP file running on said Web server passes said data to said decision server.
6. (previously presented) The method of Claim 1, further comprising:  
said code generator server generating an XML schema and an XML parser/builder for reading data corresponding to said generated XML schema, wherein said XML schema corresponds to said project and wherein said XML schema is used to define input and output structures that the business application uses when making calls to the decision server.
7. (original) The method of Claim 6, further comprising:

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providing a copy of said XML schema to said Web server for using in any of error handling, data validation, and data verification.

8. (previously presented) The method of Claim 1, further comprising:  
said code generator server generating a Web page for installing on said Web server to facilitate communication in ASP mode between said business application and said decision server.

9. (previously presented) An apparatus for a business end user for integrating the design of and the use of a decision service hosted at a data center that is external to the business end user's system that returns a real-time decision in ASP mode, said apparatus comprising:

means for a business end user linking from a business client system, using standard protocols over the Internet or virtual private network, to decision engine project design software that is resident on a first server system at a host site that is external to said business client system, and said business end user using project design software that is hosted at said external data center to design a project incorporating any of or any combination of rules, models, and/or strategies, wherein said project design software further comprises capability for inserting a champion/challenger experiment for testing a new strategy;

means for passing control to a code generator server hosted at said external data center where said code generator server generates strategy service software code, responsive to said business end user being satisfied with said any of or any combination of rules, models, and/or strategies and completing a design of said project, said code corresponding to said completed project, for use in production mode in an ASP environment at said external data center;

means for installing said generated strategy service code on a decision server hosted at said external data center for executing said rules, models, and/or

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strategies in production mode, responsive to generating said strategy service software code,;

in production mode, a second business end user, from a business application corresponding to said business client system, means for sending at least one inquiry transaction over said Internet to a Web server hosted at said external data center, which in turn delivers input data, representing said inquiry transaction, in ASP mode to said decision server;

means for said decision server processing said input data according to said installed strategy service code and creating corresponding output data at said external data center;

means for said decision server returning said created output data to said Web server in XML format; and

means for said Web server returning said output data to said business application corresponding to said business client system for said second business end user.

10. (original) The apparatus of Claim 9, further comprising:

means for using system integration and consulting services, said consulting services for developing and refining rules, models, and strategies.

11. (original) The apparatus of Claim 9, wherein said generated code is in C.

12. (original) The apparatus of Claim 9, wherein said decision server is linked to external data resources for extracting additional relevant data.

13. (original) The apparatus of Claim 9, wherein said input data is in XML format and wherein an ASP file running on said Web server passes said data to said decision server.

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14. (previously presented) The apparatus of Claim 9, further comprising:  
means for said code generator server generating an XML schema and an XML parser/builder for reading data corresponding to said generated XML schema, wherein said XML schema corresponds to said project and wherein said XML schema is used to define input and output structures that the business application uses when making calls to the decision server.

15. (original) The apparatus of Claim 14, further comprising:  
means for providing a copy of said XML schema to said Web server for using in any of error handling, data validation, and data verification.

16. (previously presented) The apparatus of Claim 9, further comprising:  
means for said code generator server generating a Web page for installing on said Web server to facilitate communication in ASP mode between said business application and said decision server.

17. (canceled)

18. (previously presented) A method for a business end user to develop rules, models, and/or strategies hosted at a data center that is external to a system of the business end user, for generating real time decisions in ASP mode, said method comprising:

at a data center that is external to a system of the business end user, using predictive and/or descriptive analytics for outputting a models file of resulting rules corresponding to a business by taking historical data including historical data of said business as input;

at said hosted external data center, providing a designer component for said business end user, said designer component providing means for said business end user to design rules, models, and strategies by using a project design, wherein said

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project design further comprises capability for inserting a champion/challenger experiment for said business end user to test a new strategy;

storing said project design corresponding to said business in a projects repository hosted at said external data center for future reference;

hosted at said external data center, generating a runtime version of said project design for testing by said business end user, said testing thereby validating and verifying said rules corresponding to said business;

stress testing said rules, models, and/or strategies by inputting a significantly large number of transactions into a business end user monitor communicatively coupled to a Web server hosted on said external data center;

said Web server generating a bulk test report representing results of said stress testing;

said business end user modifying said rules, models, and strategies, if necessary as a result of said stress testing; and

generating production code for executing in production mode hosted on said external data center.

19. (original) The method of Claim 18, wherein said predictive and/or descriptive analytics is either proprietary.
20. (previously presented) The method of Claim 18, further comprising:  
providing a model editor component on said host site for automatically converting said models file into an XML version of said rules; and  
importing said converted XML data into said designer component.
21. (previously presented) The method of Claim 18, said designer component further comprising

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providing designing software having graphical user interfaces for use by said business end user and for generating data, variables, rules, models, strategies, trees, and actions required in said project design.

22. (original) The method of Claim 18, further comprising:  
providing a test service whereby said rules are tested in runtime mode, said test service comprising a wrapper for a control panel and for an Excel testing program.
23. (original) The method of Claim 18, further comprising:  
said stress testing tracking statistics on specific rules, models, and/or strategies by counting the number of times predetermined rules, models, and/or strategies are used during said stress testing.
24. (previously presented) The method of Claim 23, further comprising:  
storing said tracked statistics in a statistics repository on said host site.
25. (original) The method of Claim 18, wherein said production code is in C.
26. (previously presented) An apparatus for a business end user to develop rules, models, and/or strategies hosted at a data center that is external to a system of the business end user, for generating real time decisions in ASP mode, said apparatus comprising:  
predictive and/or descriptive analytics at a data center that is external to a system of the business end user for outputting a models file of resulting rules corresponding to a business by taking historical data including historical data of said business as input;  
a designer component at said hosted external data center and for said business end user, said designer component providing means for said business end

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user to design rules, models, and strategies by using a project design, wherein said project design further comprises capability for inserting a champion/challenger experiment for said business end user to test a new strategy;

a projects repository hosted at said external data center for storing said project design corresponding to said business for future reference;

a generated runtime version hosted at said external data center of said project design for testing by said business end user, thereby to validate and verify said rules corresponding to said business;

means for stress testing said rules, models, and/or strategies by inputting a significantly large number of transactions into a business end user monitor communicatively coupled to a Web server hosted on said external data center;

a bulk test report generated on said Web server, said bulk test report representing results of said stress testing;

means for said business end user modifying said rules, models, and strategies, if necessary as a result of said stress testing; and

production code for executing in production mode hosted on said external data center.

27. (original) The apparatus of Claim 26, wherein said predictive and/or descriptive analytics is either proprietary.

28. (previously presented) The apparatus of Claim 26, further comprising:  
a model editor component on said host site for automatically converting said models file into an XML version of said rules; and  
means for importing said converted XML data into said designer component.

29. (previously presented) The apparatus of Claim 26, said designer component further comprising



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designing software having graphical user interfaces for use by said business end user and for generating data, variables, rules, models, strategies, trees, and actions required in said project design.

30. (original) The apparatus of Claim 26, further comprising:  
a test service for testing said rules in runtime mode, said test service comprising a wrapper for a control panel and for an Excel testing program.

31. (original) The apparatus of Claim 26, further comprising:  
means for said stress testing to track statistics on specific rules, models, and/or strategies by counting the number of times predetermined rules, models, and/or strategies are used during said stress testing.

32. (previously presented) The apparatus of Claim 26, further comprising:  
a statistics repository on said host site for storing said tracked statistics.

33. (previously presented) The apparatus of Claim 26, wherein said production code is C format.

34. (previously presented) An apparatus for a business end user in an ASP environment that is hosted at a data center that is external to a client system of the business end user for automating real time decisions, said apparatus comprising:  
a data center on [[a]] an external host site accessible over the Internet by said business end user from a business software application on a client server system that is external to said host site;  
an all-purpose decision engine resident on said external data center;  
means for said business end user configuring, testing, and deploying said all-purpose decision engine; and

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means for said business end user champion/challenger testing in a strategy design cycle;

wherein said configured decision engine is embeddable in said business software application.

35. (original) The apparatus of Claim 34, further comprising:  
at least one model.

36. (original) The apparatus of Claim 34, further comprising:  
systems integration and strategy consulting.

37. (previously presented) The apparatus of Claim 34, further comprising domain expert contributions from at least one domain expert, said at least one domain expert comprising any of:

a client;  
a partner; and  
a consultant.

38. (previously presented) The apparatus of Claim 35, wherein said at least one model is any combination of:

expert;  
judgment;  
pooled;  
custom predictive; and  
decision;

wherein said at least one model predicts any combination of risk, revenue, response, and attrition.

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39. (previously presented) The apparatus of Claim 34, said means for configuring, testing, and deploying further comprising adaptability for a variety of end user categories, comprising any of:
- vertical markets and functional areas within said vertical markets;
  - horizontal markets and functional areas within said horizontal markets;
  - operation managers of Fortune 1000 companies; and
  - training consultants and software integrators.
40. (original) The apparatus of Claim 34, said means for configuring, testing, and deploying further comprising:
- means for building a special purpose decision application having a user interface customized to a particular purpose.
41. (original) The apparatus of Claim 40, wherein said particular purpose is business.
42. (original) The apparatus of Claim 34, further comprising:
- open and industry standard software architecture on said data center for software compatibility.
43. (original) The apparatus of Claim 42, wherein said open and industry standard software architecture follows Extensible Markup Language (XML) standards for Internet communications.
44. (original) The apparatus of Claim 34, further comprising:
- an additional layer of coordinating software for linking said decision engine to netsourced and/or external data.
45. (previously presented) The apparatus of Claim 34, further comprising:

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a transaction log resident on said host of said automated real time decisions, said log accessible by a client.

46. (previously presented) The apparatus of Claim 34, further comprising:  
means for integrating said decision engine into an enterprise workflow;  
wherein said decisions comprise any combination of:  
scores;  
reason codes;  
actions; and  
other calculated results.
47. (previously presented) The apparatus of Claim 34, further comprising:  
a decision process template resident on said host site for facilitating easy assembly of a basic design of said decision engine.
48. (canceled)
49. (previously presented) The apparatus of Claim 34, further comprising:  
automatic means for importing predefined models and/or strategies by an said business end user into said configured decision engine.
50. (original) The apparatus of Claim 34, further comprising:  
a visual designer component for facilitating said configuring said decision engine;  
a Web-based reporting facility component for design time configuration and run-time testing results; and  
a run-time server for run-time execution of said configured decision engine wherein said server is linked to from a requesting system via a Web-server.

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51. (original) The apparatus of Claim 50, further comprising:  
means for using said visual designer component to create a project  
resident at said data center;  
means for said data center generating associated code for said project  
and install said associated code on said run-time server;  
means for said data center generating an XML schema corresponding to  
said project to define input and output structures for said business application; and  
means for said run-time server accepting transactions from said business  
application, said transactions conforming to said XML schema, said run-time server  
processing said transactions using said project to generate said real time decisions, and  
said run-time server returning said real time decisions to said business application via  
said Web-server.
52. (original) The apparatus of Claim 34, further comprising:  
user defined rules to be executed by said decision engine.
53. (previously presented) The apparatus of Claim 51, said project having a  
project design and associated design parts, said design parts comprising any of:  
input and output data structures;  
characteristic generations;  
models comprising characteristics and attributes to produce a predictive  
score and a score reason at runtime for a given transaction, and user defined functions;  
a reason codes corresponding to said score reason;  
business rules and exclusions;  
decision strategies; and  
recommended decisions, scores, and actions;  
wherein said project design is carried out by a workflow functional  
component of said designer component by working with said project design parts;  
wherein said workflow functional component comprises:

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expression sequences;  
segmentation trees;  
workflow lists;  
means for placing said sequences, trees, and lists in a desired  
order, said order comprising a hierarchical design;  
a root workflow list providing a starting point for processing said  
workflow at runtime and means for defining said workflow of said project; and  
wherein said reason codes are determined during calculation of said  
scores.

54. (original) The apparatus of Claim 53, wherein said root workflow list represents a main thread of execution for said project at runtime, wherein any of said workflow lists is used as a result list at an exit point of a segmentation tree of said segmentation trees, and wherein end result nodes in said segmentation tree points to said workflow list.

55. (previously presented) The apparatus of Claim 54, wherein more than one node in any of: said segmentation tree and said more than one segmentation tree, in said project points to a same workflow list of said workflow lists.

56. (previously presented) The apparatus of Claim 53, further comprising means for validating said models, wherein said means for validating comprises:  
using a model editor for validating and verifying content of said models;  
and  
marking said project for production or testing.

57. (previously presented) A method for a business end user in an ASP environment that is hosted at a data center that is external to a client system of the business end user for automating real time decisions, said method comprising:

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providing a data center on an external host site accessible over the Internet by said business end user from a business software application on a client server system that is external to said host site;

providing an all-purpose decision engine resident on said external data center;

said business end user configuring, testing, and deploying said all-purpose decision engine; and

said business end user champion/challenger testing in a strategy design cycle;

wherein said configured decision engine is embeddable in said business software application.

58. (original) The method of Claim 57, further comprising:  
providing at least one model.

59. (original) The method of Claim 57, further comprising:  
providing systems integration and strategy consulting.

60. (previously presented) The method of Claim 57, further comprising  
providing domain expert contributions from at least one domain expert, said at least one domain expert comprising any of:

a client;  
a partner; and  
a consultant.

61. (previously presented) The method of Claim 58, wherein said at least one model is any combination of:

expert;  
judgment;

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pooled;  
custom predictive; and  
decision;

wherein said at least one model predicts any combination of risk, revenue, response, and attrition.

62. (previously presented) The method of Claim 57, wherein said configuring, testing, and deploying further comprises adaptability for a variety of end user categories, comprising any of:

- vertical markets and functional areas within said vertical markets;
- horizontal markets and functional areas within said horizontal markets;
- operation managers of Fortune 1000 companies; and
- training consultants and software integrators.

63. (original) The method of Claim 57, said configuring, testing, and deploying further comprising:

building a special purpose decision application having a user interface customized to a particular purpose.

64. (original) The method of Claim 63, wherein said particular purpose is business.

65. (original) The method of Claim 57, further comprising:  
providing open and industry standard software architecture on said data center for software compatibility.

66. (original) The method of Claim 65, wherein said open and industry standard software architecture follows Extensible Markup Language (XML) standards for Internet communications.



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67. (original) The method of Claim 57, further comprising:  
providing an additional layer of coordinating software for linking said  
decision engine to netsourced and/or external data.
68. (previously presented) The method of Claim 57, further comprising:  
providing a transaction log resident on said host of said automated real  
time decisions, said log accessible by a client.
69. (previously presented) The method of Claim 57, further comprising:  
integrating said decision engine into an enterprise workflow;  
wherein said decisions comprise any combination of:  
scores;  
reason codes;  
actions; and  
other calculated results.
70. (previously presented) The method of Claim 57, further comprising:  
providing a decision process template resident on said host site for  
facilitating easy assembly of a basic design of said decision engine.
71. (canceled)
72. (previously presented) The method of Claim 57, further comprising:  
automatic importing predefined models and/or strategies by said business  
end user into said configured decision engine.

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73. (original) The method of Claim 57, further comprising:  
providing a visual designer component for facilitating said configuring said decision engine;  
providing a Web-based reporting facility component for design time configuration and run-time testing results; and  
providing a run-time server for run-time execution of said configured decision engine wherein said server is linked to from a requesting system via a Web-server.
74. (original) The method of Claim 73, further comprising:  
using said visual designer component to create a project resident at said data center;  
said data center generating associated code for said project and install said associated code on said run-time server;  
said data center generating an XML schema corresponding to said project to define input and output structures for said business application; and  
said run-time server accepting transactions from said business application, said transactions conforming to said XML schema, said run-time server processing said transactions using said project to generate said real time decisions, and said run-time server returning said real time decisions to said business application via said Web-server.
75. (original) The method of Claim 57, further comprising:  
providing user defined rules to be executed by said decision engine.
76. (previously presented) The method of Claim 74, wherein said project comprises a project design and associated design parts, said design parts comprising any of:  
input and output data structures;

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characteristic generations;  
models comprising characteristics and attributes to produce a predictive score and a score reason at runtime for a given transaction, and user defined functions;  
a reason codes corresponding to said score reason;  
business rules and exclusions;  
decision strategies; and  
recommended decisions, scores, and actions;  
wherein said project design carried out by a workflow functional component of said designer component by working with said project design parts;  
wherein said workflow functional component comprises:  
expression sequences;  
segmentation trees;  
workflow lists;  
means for placing said sequences, trees, and lists in a desired order, said order comprising a hierarchical design;  
a root workflow list providing a starting point for processing said workflow at runtime and means for defining said workflow of said project; and  
wherein said reason codes are determined during calculation of said scores.

77. (original) The method of Claim 76, wherein said root workflow list represents a main thread of execution for said project at runtime, wherein any of said workflow lists is used as a result list at an exit point of a segmentation tree of said segmentation trees, and wherein end result nodes in said segmentation tree points to said workflow list.

78. (previously presented) The method of Claim 77, wherein more than one node in any of said segmentation tree and said more than one segmentation tree, in said project points to a same workflow list of said workflow lists.

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79. (previously presented) The method of Claim 76, further comprising  
validating said models, wherein said validating comprises:  
using a model editor for validating and verifying content of said models;  
and  
marking said project for production or testing.